

Rogue River Sediment Evaluation

Abstract

According to guidelines in the MPRSA and CWA sediment from the shoal in the channel of the Federal Project meets exclusionary criteria and is acceptable for unconfined in-water and upland disposal. The sediment is gravelly coarse sand low in organic content. It is similar to material at the offshore ODMDS and the beach disposal site. No unacceptable, adverse environmental impacts are expected from its disposal.

Introduction

1. The Rogue River discharges into the Pacific Ocean 32 miles north of the California State border. The drainage basin of the Rogue is 5,100 mi² and is the largest of Oregon's coastal rivers (1).
2. The authorized Federal Project at the mouth of the Rogue consists of a channel 13 feet deep and 300 feet wide. It runs from deep water in the ocean for approximately 3,500 feet to the entrance to the Gold Beach boat basin access channel. The boat basin access channel is 10 feet deep and 150 feet wide into the boat basin. The access channel can be shifted as needed to take advantage of deepest water available (2).
3. Because the mouth is a high energy area, a large shoal usually develops during spring and summer between the north and south jetties. This shoal migrates up the channel on the south side restricting navigation into and out of the Gold Beach boat basin.
4. The last evaluation of sediment from The Rogue River project was completed in 1982 (3). The sediment at the mouth was composed of very coarse sand with some gravel and cobbles. The volatile solids content was less than 2.0 % while that of samples taken from the boat basin access channel were roughly 4.0 to 8.0 %. Dredging experience over the years has shown this to be consistently the case. Concentrations of potential contaminants in bulk sediment and elutriates were below established concern levels. There were no known sources of contaminants in the nearby area. The sediment was judged acceptable for unconfined in-water and upland disposal according to regulations promulgated in section 102 and 103 of the Marine Protection Research And Sanctuaries Act (MPRSA) and section 404 of the Clean Water Act (CWA). The material has been disposed at an offshore Ocean Dredged Material Disposal Site (ODMDS) and onto the surf zone of a nearby beach located south of the south jetty.
5. Because of the length of time since the last sediment evaluation, Corps personnel sampled the shoal in April 1992 to verify the dredged material had not changed significantly. Future sampling will occur on an approximate 5 year schedule. While there, several samples were taken from the Gold Beach boat basin, outside of the Federally authorized navigation channel, for the Environmental Protection Area (EPA), Region 10. These EPA samples were subjected to physical and chemical analyses. A sediment evaluation report of the results is in preparation (4).

Methods

6. The enclosed map (Figure 1) shows 4 locations in the Federal project where attempts were made to obtain samples by ponar and backup sampler. The clamshells of the ponar usually came up empty or with a cobble(s) wedged between the clamshells. Sometimes there was a small amount of coarse sand but not enough for a sample. The alternate sampler was a metal cylinder about 1.5 feet long and 6 inches in diameter. It was dragged along the bottom in attempts to scoop up a sediment sample. This method proved fruitless because of the hard, compact, gavelly nature of the bottom.

7. Because of conditions, one sample (RR-P-5) was taken from the shoal using a hand held stainless steel scoop. This sample was taken downstream from where a pipeline dredge was operating in the large shoal. The material obtained by the scoop was considered representative of the shoal. This was verified by observing the physical nature of the material being dredged, the nature of the material at the sampling location and the material exiting the pipeline from the dredge at the beach disposal site a few hundred yards away. The physical sample was cold stored in a plastic ziplock bag.

8. The sample taken from the shoal was clean, coarse sand with gravel and cobbles. Physical parameters measured on this sample were resuspended density, void ratio, specific gravity, particle roundness, soil classification and grain size distribution. The material is similar to that at the offshore ODMDS (5) and the beach disposal site. It was not subjected to chemical analyses because it met exclusionary criteria of the MPRSA and CWA.

Results

9. Results of physical analyses of the shoal sample are shown in Table 1. The sediment is coarse gravelly sand low in organic content (less than 3.0 % volatile solids). For comparison, the results of the 1982 samples, taken in the same general area, are included also in Table 1. The comparison shows that there is little variation over time.

Recommendations

10. According to guidelines in the MPRSA and CWA sediment from the shoal in the channel of the Federal Project is acceptable for unconfined in-water and upland disposal. No unacceptable adverse environmental impacts are expected from such disposal. This data confirms the data reported in the 1982 sediment evaluation and supports the conclusions of that report regarding disposal options.

11. If you have any questions regarding this sediment evaluation please contact Jim Britton, CENPP-PE-HR, 326-6471.

Table 1.

Comparison of dredge test results on sediment samples from the shoal at the mouth of the Rogue River - 1982 and 1992.

sample	volatile solids %	resuspended density gm/l	void ratio	particle roundness	soil classification
<u>1982</u>					
site 0	1.69	2095	0.637	subround to subangular	sp
entrance	1.20	2024	0.775	subround to subangular	sp
<u>1992</u>					
RR-P-5	2.60	2012	0.701	subround to subangular	sp

REFERENCES

1. Percy, K.L., Bella, D.A., Sutterlin, C., Klingeman, P.C. 1974. Descriptions and Information Sources for Oregon Estuaries. Sea Grant College Program, Oregon State University.
2. Navigation Branch, Operations Division, U. S. Army Corps of Engineers, Portland District. September 1991. Federal Navigation Projects: Columbia River Maintenance Disposal Plan. (Prepared by Mandaville Associates, 600 S. W. Tenth #418, Portland, Oregon 92205)
3. U. S. Army Corps of Engineers. April 1982. Sediment Physical and Chemical Characteristics Rogue River Federal Navigation Project: April 1992.
4. Britton J. U. S. Army Corps of Engineers, Portland District. October 1992. Physical and Chemical Characteristics of Sediment From the Gold Beach Boat Basin on the Rogue River. Prepared for EPA, Region 10, Seattle, Washington.
5. U. S. Army Corps of Engineers, Portland District. October 1988. Rogue Ocean Dredged Material Disposal Site Evaluation. Final Report.



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d Base

CENPD-PE-GT-L (1110-1-8100c)

13 May 92

MEMORANDUM FOR Commander, Portland District, ATTN: CENPP-PE-HR (Britton)

SUBJECT: W.O.#92-SHM-181, Report of Soil Analyses

Project: ROGUE RIVER
Intended Use: ---
Submitted by: CENPP-PE-HR (Britton)
Date Sampled: 28 Apr 92 Date Received: 29 Apr 92
Method of Test or Specification: ASTM, EM1110-2-1906
Reference: a) DD Form 448, MIPR No. E86-92-0072, dated 4 Mar 92
b) NPD Form 300, Transmittal of Materials Samples covering
submittal of five sediment samples, dated 29 Apr 92

1. Enclosed is report of tests on five sediment samples from the above project. Included are:

a. Enclosure 1, Summary of Soil Classification and Dredge Test Analysis.

b. Enclosure 2 a-e, Results of Particle Size Analysis for each of five samples submitted.

2. This completes all work requested on the above samples.

Enclosures

Timothy J. Seeman
TIMOTHY J. SEEMAN
Director

Copy Furnished: CENPD-PE-GT
W.O. 92-SHM-181
Materials Branch
Reading File

MFR: Routine tests made on sediment samples from the Rogue River sediment study. Predominantly silt and sand. Complete copy in office files.

CENPD-PE-GT-L (92-SHM-181)

Summary of Rogue River Soil Classification and Dredge Test Analysis

<u>Sample</u> <u>No.</u>	<u>Soil</u> <u>Classification</u> <u>ASTM-D2487</u>	<u>Resuspended</u> <u>Density,</u> <u>gm/l</u>	<u>Void</u> <u>Ratio</u>	<u>Volatile</u> <u>Solids,</u> <u>%</u>	<u>Specific</u> <u>Gravity</u>	<u>Particle</u> <u>Roundness</u> <u>Grading</u>
RR-P-1	SM	--	--	4.8	--	--
RR-P-2	ML	--	--	5.0	--	--
RR-P-3	ML	--	--	9.5	--	--
RR-P-4	ML	--	--	11.4	--	--
RR-P-5	SP	2012	0.701	2.6	2.722	Subangular- subrounded

CENPDL No. S-63, received 29 Apr 92

*** Corps of Engineers - North Pacific Division Materials Laboratory ***
 ROGUE RIVER (92-SHM-181)

Boring: -- Sample: RR-P-5 Depth: -- Lab No.: 18119

----- Sieve Analysis -----

Sieve	Cumulative Grams Retained	Percent Passing
5 In.	0.00	100.0
2.5 In.	0.00	100.0
1.25 In.	215.10	92.0
5/8 In.	357.60	86.6
5/16 In.	388.10	85.5
No. 5	409.80	84.7
No. 10	445.00	83.4
Pan	2673.80	0.0
No. 18	6.45	80.4
No. 35	40.24	65.0
No. 60	104.13	35.9
No. 120	162.63	9.3
No. 230	183.00	0.0
Pan	183.03	0.0

No hydrometer analysis.

$\bar{X} = 1.877$

D85: 5.14 D60: 0.44 D50: 0.34 D30: 0.22 D15: 0.15 D10: 0.13 mm
 Cu: 3.44 Cc: 0.85

Liquid Limit: NP Plasticity Index: NP
 Fines Type Used for Classification: ML, SILT

Gravel: 15.1% Sand: 84.1% Fines: 0.8%

----- ASTM D 2487 Classification -----

SP Poorly graded SAND with gravel

----- Comments -----

- VOLATILE SOLIDS = 2.6%

